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Pro Glu Trp Leu Ser Phe Asp Val Thr Gly Val Val Arg Gln Trp Leu 195 200 205

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Ser Gly Arg Arg Gly Asp Leu Ala Thr Ile His Gly Met Asn Arg Pro 245 250 255

Phe Leu Leu Met Ala Thr Pro Leu Glu Arg Ala Gln His Leu His 260 265 270

Ser Ser Arg His Arg Arg Asp Tyr Lys Asp Asp Asp Lys Ala Leu 275 280 285

Asp Thr Asn Tyr Cys Phe Ser Ser Thr Glu Lys Asn Cys Cys Val Arg 290 295 300

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Glu Pro Lys Gly Tyr His Ala Asn Phe Cys Leu Gly Pro Cys Pro Tyr 325 330 335

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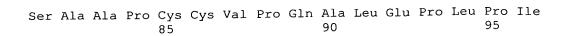
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ct: Le:	g tad u Tyi	c aac c Ası	c acc	ata Ile	a aat e Asr	ccc Pro	gaa Glu	a gct ı Ala	t tco a Sei	c gct	t tco a Sei	c cct	t tgc o Cys	tgt Cys	gtg s Val	1201

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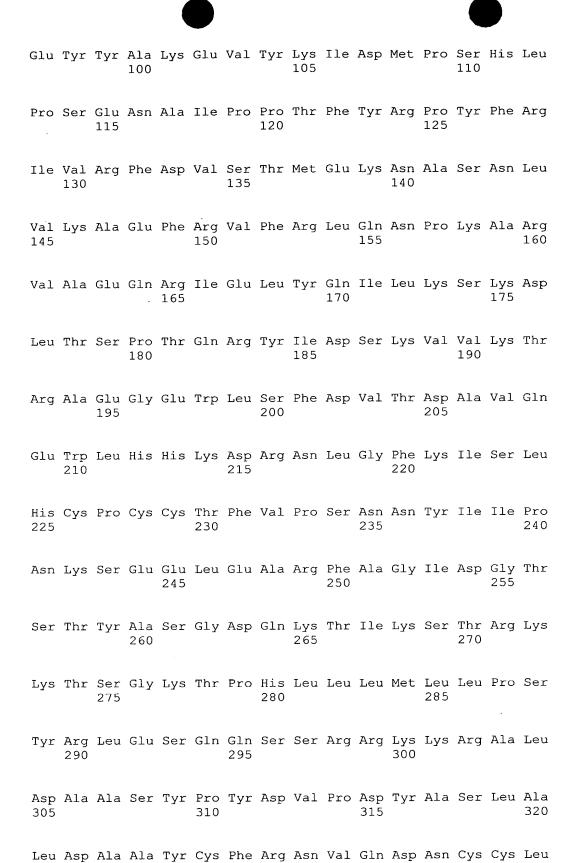
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Lys Ala Ser Arg Arg Ala Ala Cys Glu Arg Glu Arg Ser Glu Gln 90 85



325 330 335

Arg Pro Leu Tyr Ile Asp Phe Lys Arg Asp Leu Gly Trp Lys Trp Ile

His Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly Ala Cys Pro 360 Tyr Leu Trp Ser Ser Asp Thr Gln His Thr Lys Val Leu Ser Leu Tyr 375 Asn Thr Ile Asn Pro Glu Ala Ser Ala Ser Pro Cys Cys Val Ser Gln 395 385 Asp Leu Glu Pro Leu Thr Ile Leu Tyr Tyr Ile Gly Asn Thr Pro Lys 405 410 Ile Glu Gln Leu Ser Asn Met Ile Val Lys Ser Cys Lys Cys Ser 425 <210> 28 <211> 1272 <212> DNA <213> Fusion ,e, d ijj <220> 4 <221> CDS <222> (1)..(1272) <223> 3 Ļ≜ C <220> <u></u>å.≜ <221> misc feature 4j <222> (895)..(909) <223> Encodes amino acid residues 1-5 of TGF-beta3 <220> <221> misc feature <222> (910)..(933) <223> Encodes FLAG epitope tag <220> <221> misc_feature <222> (895)..(1272)<223> Encodes mature fusion protein <400> 28 atg cac ttg caa agg gct ctg gta gtc ctg gcc ctg ctg aac ttg gcc Met His Leu Gln Arg Ala Leu Val Val Leu Ala Leu Leu Asn Leu Ala 10 aca atc agc ctc tct ctg tcc act tgc acc acg ttg gac ttc ggc cac Thr Ile Ser Leu Ser Leu Ser Thr Cys Thr Thr Leu Asp Phe Gly His

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48

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Leu Arg Leu Thr Ser Pro Pro Glu Pro Ser Val Met Thr His Val Pro 50 55

Tyr Gln Val Leu Ala Leu Tyr Asn Ser Thr Arg Glu Leu Leu Glu Glu 65 70 75 80

Met His Gly Glu Arg Glu Glu Gly Cys Thr Gln Glu Thr Ser Glu Ser 90 95

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Cys Pro Cys His Thr Phe Gln Pro Asn Gly Asp Ile Leu Glu Asn Val 225 230 235 240 His Glu Val Met Glu Ile Lys Phe Lys Gly Val Asp Asn Glu Asp Asp 245 250 255

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A COUNTY TO A COUNTY OF THE CO	atg cac Met His	ggg ga Gly Gl	g agg u Arg 85	gag Glu	gaa Glu	ggc Gly	tgc Cys	act Thr 90	cag Gln	gag Glu	acc Thr	tcg Ser	gag Glu 95	tct Ser	288
, g , g , g , g , g , g , g , g , g , g	gag tac Glu Tyr	tat gc Tyr Al 10	a Lys	gag Glu	atc Ile	cat His	aaa Lys 105	ttc Phe	gac Asp	atg Met	atc Ile	cag Gln 110	gga Gly	ctg Leu	336
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Tyr Gln Val Leu Ala Leu Tyr Asn Ser Thr Arg Glu Leu Leu Glu Glu 65 70 75 80

Met His Gly Glu Arg Glu Glu Gly Cys Thr Gln Glu Thr Ser Glu Ser 85 90 95

Glu Tyr Tyr Ala Lys Glu Ile His Lys Phe Asp Met Ile Gln Gly Leu 100 105 110

Ala Glu His Asn Glu Leu Ala Val Cys Pro Lys Gly Ile Thr Ser Lys 115 120 125

Val Phe Arg Phe Asn Val Ser Ser Val Glu Lys Asn Gly Thr Asn Leu 130 135 140 Phe Arg Ala Glu Phe Arg Val Leu Arg Val Pro Asn Pro Ser Ser Lys 145 150 155 160

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His Ile Ala Lys Gln Arg Tyr Ile Gly Gly Lys Asn Leu Pro Thr Arg 180 185 190

Gly Thr Ala Glu Trp Leu Ser Phe Asp Val Thr Asp Thr Val Arg Glu 195 200 205

Trp Leu Leu Arg Arg Glu Ser Asn Leu Gly Leu Glu Ile Ser Ile His 210 220

Cys Pro Cys His Thr Phe Gln Pro Asn Gly Asp Ile Leu Glu Asn Val 225 230 235

His Glu Val Met Glu Ile Lys Phe Lys Gly Val Asp Asn Glu Asp Asp 245 250 255

His Gly Arg Gly Asp Leu Gly Arg Leu Lys Lys Gln Lys Asp His His 260 265 270

Asn Pro His Leu Ile Leu Met Met Ile Pro Pro His Arg Leu Asp Ser 275 280 285

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Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser Leu Ala Leu Asp Thr Asn 305 310 315

Tyr Cys Phe Arg Asn Leu Glu Glu Asn Cys Cys Val Arg Pro Leu Tyr 325 330 335

Ile Asp Phe Arg Gln Asp Leu Gly Trp Lys Trp Val His Glu Pro Lys 340 345 350

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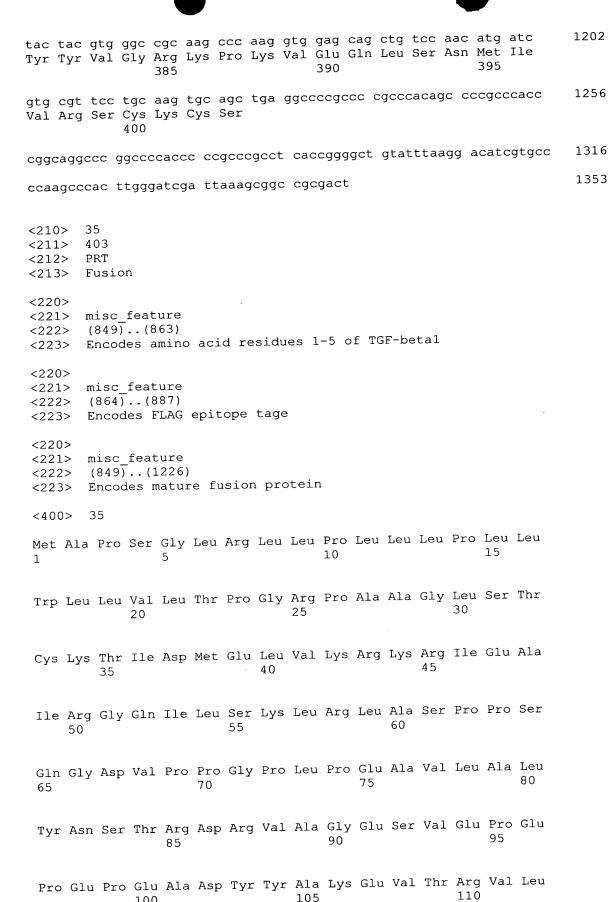
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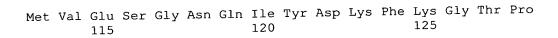
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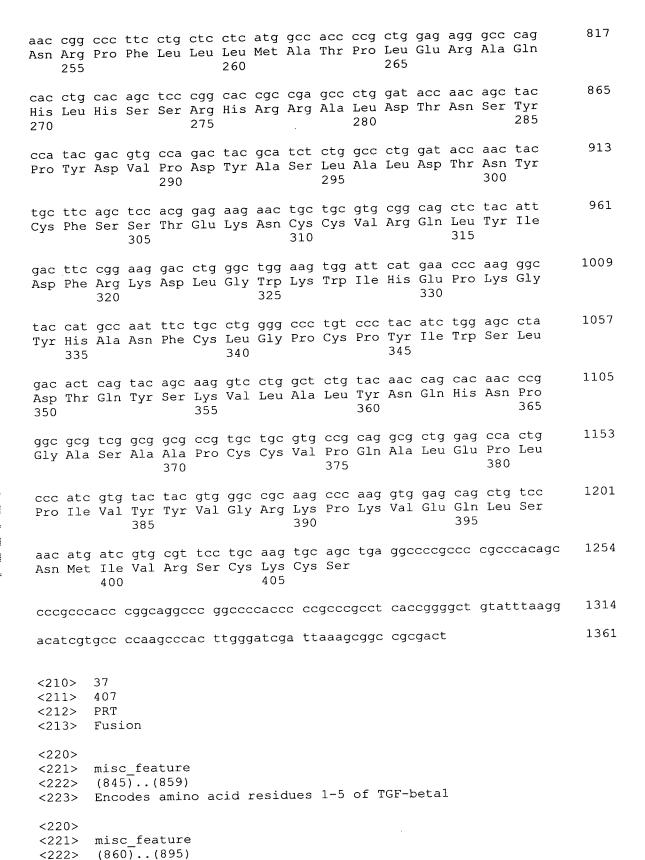
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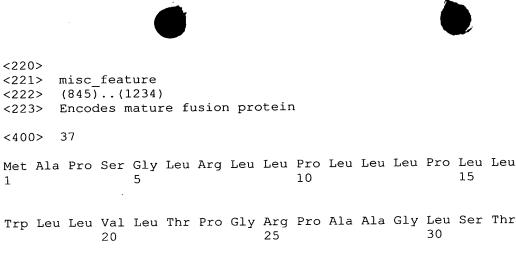
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Glu P	cg gag ro Glu 5	ccc Pro	gag Glu	cca Pro	gag Glu 100	gcg Ala	gac Asp	tac Tyr	tac Tyr	gcc Ala 105	aag Lys	gag Glu	gtc Val	acc Thr	. 337
cgc g Arg V	tg cta al Leu	atg Met	gtg Val	gaa Glu	agc Ser	ggc Gly	aac Asn	caa Gln	atc Ile	tat Tyr	gat Asp	aaa Lys	ttc Phe	aag Lys	385

120 125 110 ggc acc ccc cac agc tta tat atg ctg ttc aac acg tcg gag ctc cgg 433 Gly That Pro His Ser Leu Tyr Met Leu Phe Asn Thr Ser Glu Leu Arg 130 135 gaa gcg gtg ccg gaa cct gta ttg ctc tct cgg gca gag ctg cgc ctg 481 Glu Ala Wal Pro Glu Pro Val Leu Leu Ser Arg Ala Glu Leu Arg Leu 150 ctg agg ctd aag tta aaa gtg gag cag cac gtg gag cta tac cag aaa 529 Leu Arg Leu Lys Leu Lys Val Glu Gln His Val Glu Leu Tyr Gln Lys 165 577 tac age aat gat tee tgg ege tac ete age aac egg etg etg gee eee Tyr Ser Asn Asp Ser Trp Arg Tyr Leu Ser Asn Arg Leu Leu Ala Pro 180 agt gac tca ccg \gag tgg ctg tcc ttt gat gtc acc gga gtt gtg cgg 625 Ser Asp Ser Pro Clu Trp Leu Ser Phe Asp Val Thr Gly Val Val Arg 195 200 cag tgg ctg acc cg \dot{q} aga gag gct ata gag ggt ttt cgc ctc agt gcc 673 Gln Trp Leu Thr Arg\Arg Glu Ala Ile Glu Gly Phe Arg Leu Ser Ala 215 210 cac tgt tcc tgt gac a'gc aaa gat aac aca ctc cac gtg gaa att aac 721 His Cys Ser Cys Asp Ser Lys Asp Asn Thr Leu His Val Glu Ile Asn 225 230 769 ggg ttc aat tct ggc cgc/cgg ggt gac ctg gcc acc att cac ggc atg Gly Phe Asn Ser Gly Arg Varg Gly Asp Leu Ala Thr Ile His Gly Met 245 817 aac egg eee tte etg etc etc atg gee ace eeg etg gag agg gee eag Asn Arg Pro Phe Leu Leu Leu Met Ala Thr Pro Leu Glu Arg Ala Gln 260 255 cac ctg cac age tee egg cae teg cga gee etg gat ace aac age tae 865 His Leu His Ser Ser Arg His Arg Arg Ala Leu Asp Thr Asn Ser Tyr 275 cca tac gac gtg cca gac tac gca\tct ctg gcc ctg gat acc aac tac 913 Pho Tyr Asp Val Pro Asp Tyr Ala Ser Leu Ala Leu Asp Thr Asn Tyr 295 290 tgc ttc agc tcc acg gag aag aac t \oint_C tgc gtg cgg cag ctc tac att 961 Cys Phe Ser Ser Thr Glu Lys Asn Cys Cys Val Arg Gln Leu Tyr Ile 305 310 1009 qac ttc cqq aaq qac ctq qqc tqq aaq tqg att cat gaa ccc aag ggc Asp Phe Arg Lys Asp Leu Gly Trp Lys Trop Ile His Glu Pro Lys Gly 325 330 tac cat gcc aat ttc tgc ctg ggg ccc tgt δ cc tac atc tgg agc cta 1057 Tyr His Ala Asn Phe Cys Leu Gly Pro Cys Pto Tyr Ile Trp Ser Leu 335 340 gac act cag tac age aag gtc ctg gct ctg tac ac cag cac aac ccg 1105 Asp Thr Gln Tyr Ser Lys Val Leu Ala Leu Tyr Aan Gln His Asn Pro 350

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Gln Gly Asp Val Pro Pro Gly Pro Leu Pro Glu Ala Val Leu Ala Leu 65 70 75 80	
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Met Val Glu Ser Gly Asn Gln Ile Tyr Asp Lys Phe Lys Gly Thr Pro
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His Ser Leu Tyr Met Leu Phe Asn Thr Ser Glu Leu Arg Glu Ala Val 130 140

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Lys Leu Lys Val Glu Glh His Val Glu Leu Tyr Gln Lys Tyr Ser Asn 165 170 175

Asp Ser Trp Arg Tyr Leu Ser Asn Arg Leu Leu Ala Pro Ser Asp Ser 180 185 190

Pro Glu Trp Leu Ser Phe Asp Val Thr Gly Val Val Arg Gln Trp Leu 195 200 205

Thr Arg Arg Glu Ala Ile Glu Gly Phe Arg Leu Ser Ala His Cys Ser 210 215 220

Cys Asp Ser Lys Asp Asn Thr Leu His Val Glu Ile Asn Gly Phe Asn 225 230 235 240

Ser Gly Arg Arg Gly Asp Leu Ala Thr Ile His Gly Met Asn Arg Pro 245 250 255

Phe Leu Leu Met Ala Thr Pro Leu Glu Arg Ala Gln His Leu His 260 265 270

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Val Pro Asp Tyr Ala Ser Leu Ala Leu Asp Thr Asn Tyr Cys Phe Ser 290 295 300

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Tyr Ser Lys Val Leu Ala Leu Tyr Asn Gln His Asn Pro Gly Ala Ser 355 360 365

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58